State of Michigan
Curriculum for Mammography Instruction
for
Radiologic Technologists

**(As prescribed by Act No. 368
of the Public Acts of 1978,
as amended, R 325.5625.)**

March 1995

Adapted from the CDC/ACR Cooperative Agreement for
Quality Assurance Activities in Mammography

SECTION: TECHNOLOGIST SESSION 1 (TS1)

TITLE: INTRODUCTION TO PROGRAM

GOAL: The participant will understand the purpose of the program and what is expected.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- Understand the purpose of the program
- Know what is expected of participants
- See certificate for successful completion
- Review program outline:
  - Total Didactic Time: 17.0 hours (50 minutes hours)
  - Total Lab Time: 5 hours

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

TIME: 30 Minutes

FACULTY: R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: None

SECTION: TECHNOLOGIST SESSION 2 (TS2)

TITLE: PROGRESS IN BREAST CANCER CONTROL - AN OVERVIEW

GOAL: The participant will review screening guidelines and principles of staging.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Define NCI/ACS screening guidelines for early detection of breast cancer.
- ! Differentiate Stage 0 and Stage 1 breast cancer utilizing the TNM classification.
- ! Identify significant risk factors associated with breast cancer.

CONTENT:

I. Epidemiology

- A. Definition of Cancer Control (Roles of CDC, NCI, ACR, etc.)
- B. Breast Cancer: Facts and Figures
  1. Incidence
  2. Mortality
  3. Risk Factors
  4. Prevention Research

II. Early Detection

- A. Screening Guidelines (Asymptomatic)
  1. Mammogram
  2. CBE
  3. BSE
- B. Diagnostic Evaluation (Symptomatic)
  1. Mammographic Workup
  2. Ultrasound
  3. Ductography
  4. Other (e.g., CT, MRI)

III. Diagnosis

A. Biopsy Techniques
   1. Mammographic, including stereotactic procedures
   2. Ultrasound/CT/etc.
   3. Surgical
B. Patient Education

IV. Principles of Staging and Treatment Planning

A. Staging: The TNM System
B. Stage 0 vs. Stage 1 vs. Advanced Stage Cancer
C. Local Control vs. Systemic Control
D. The Role of the Tumor Board
E. The Role of the Tumor Registry
F. Patient Education

CORRELATIVE SKILLS:

Not Applicable

SUGGESTED TEACHING AIDS:

Standardized Slide Set (to be developed)

TIME: 90 Minutes

FACULTY: M.D./D.O., R.N., R.T.

TEACHING METHODS: Lecture, slides, etc.

EVALUATION COMPONENT: Written Test

SECTION: TECHNOLOGIST SESSION 3 (TS3)

TITLE: ANATOMY AND PATHOPHYSIOLOGY OF THE BREAST

GOAL: The participant will recognize normal and abnormal breast anatomy.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Identify basic anatomical breast structures on a mammogram.
- ! Differentiate between normal, benign and malignant breast conditions.

CONTENT:

I. Basic Anatomy - Breast Structures

- A. Ribs
- B. Pectoral Muscles
- C. Superficial and Deep Fascia
- D. Cooper's Ligaments/Suspensory Ligaments
- E. Tissue
  1. Adipose
  2. Fibrous or Connective
  3. Glandular - Lobular - Ductal Epithelium
- F. Lobes
- G. Ducts
- H. Blood Vessels
- I. Lymphatic
- J. Tail of Spence
- K. Retromammary Fat Space
- L. Nipple
- M. Areola, Montgomery Glands
- N. Base
- O. Apex
- P. Inframammary Crease
- Q. Nerves

II. Physiology - Normal Involution

- A. Puberty
- B. Menstrual Cycle
- C. Pregnancy
- D. Lactation
- E. Menopause
- F. Effect of Exogenous Hormones on Breast Tissue
- G. Birth Control Pills
- H. Hormone Replacement Therapy

III. Tissue Composition Classification

- A. Fibro-glandular
- B. Fibro-fatty
- C. Fatty
- D. Impact on Radiographic Quality

IV. Location of Breast

- A. Superiorly to Clavicle
- B. Medially to Sternum
- C. Inferiorly to Inferior Crease (6-7 rib)
- D. Laterally to Mid-Axillary Line (junction with latissimus dorsi muscle)

V. Location of Tumors (Benign/Malignant)

- A. By Quadrant (By Areas of Occurrence and Percentage)
- B. By Clock Face Notation

VI. Benign Breast Conditions

- A. Cysts
- B. Fibroadenoma
- C. Intraductal Papilloma
- D. Mastitis
- E. Lipoma
- F. Fat Necrosis
- G. Radial Scar
- H. Hematoma
- I. "Fibrocystic" Condition

VII. Malignant Breast Conditions

A. Development of Breast Cancer
   1. Origin in epithelial lining of duct or TDLU
   2. Transition state: Normal, Hyperplasia, Atypia, CA
   3. 40% Calcification; 60% Masses (how CA appears radiographically)
   4. Locations - Frequency

B. Non-invasive (Stage 0)
   1. DCIS
   2. LCIS (high risk marker)
   3. Paget's Disease

C. Invasive
   1. Infiltrating Ductal
   2. Infiltrating Lobular
   3. Other - e.g., Inflammatory Carcinoma

CORRELATIVE SKILLS:

Breast Examination Skills Lab

SUGGESTED TEACHING AIDS:

- Lange Productions Video - Breast Facts, the Basics (Patient Education)
- The Clinical Breast Examination Slide Set (Michigan ACS)
- MammaCare Simulated Breast Models - Mammatech Corporation
- New Slide Set (to be developed)

TIME: 90 Minutes

FACULTY: M.D./D.O., R.N., R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 4 (TS4)

TITLE: MAMMOGRAPHY EQUIPMENT AND TECHNIQUE

GOAL: The participant will become familiar with dedicated mammography equipment.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Identify key parts of dedicated film-screen mammography equipment.
- ! Select appropriate technical factors for individual application.

CONTENT:

I. Mammography Equipment

- A. Compression
  1. Manual vs. Motorized Footpedal
  2. Degree of Compression
  3. Paddle Structure, Size and Alignment
- B. Focal Spot Size
- C. Generator Characteristics and Effective Power
- D. Grids, Filters and Collimator Devices
- E. Image Receptor
- F. Magnification Imaging
- G. Positioning Features
- H. SID (source-image distance)
- I. X-ray Tube Characteristics
  1. Target Angle
  2. Filtration
  3. Target Material - Molybdenum vs. Tungsten

II. Appropriate Technique Selection

- A. Density and Contrast
- B. kVp (range and rationale)
- C. mAs
- D. Phototiming (application) Automatic Exposure Control (AEC)
- E. HVL (half-value layer)

F. Reciprocity Law Failure
G. Photoelectric Effect vs. Compton Scatter

CORRELATIVE SKILLS:

- Quality Control Skills Lab
- Film Critique Skills Lab

SUGGESTED TEACHING AIDS:

- Slide Set/Script (to be developed)
- Sample Film Set

TIME: 90 Minutes

FACULTY: Physicist, R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 5 (TS5)

TITLE: MAMMOGRAPHY QUALITY CONTROL

GOAL: The participants will be introduced to quality control standards and test procedures.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Critique image quality.
- ! Identify variations in image quality.
- ! Describe the appropriate corrective measures.

CONTENT:

I. Fundamentals of Image Quality

- A. Density
- B. Contrast
  - 1. Subject Contrast
  - 2. Receptor Contrast
- C. Image Sharpness
- D. Radiographic Noise
- E. Definition
- F. Distortion

II. Fundamentals of Automated Processing Development

- A. Dedicated vs. Non-dedicated Processing
  - 1. Chemistry
  - 2. Temperature
  - 3. Replenishment
  - 4. Advantages and Disadvantages
- B. 90-second vs. Extended-cycle Processing
  - 1. Chemistry
  - 2. Temperature
  - 3. Replenishment
  - 4. Advantages and Disadvantages
  - 5. Processor Related Artifacts

C. Cleaning and Maintenance
D. Air Quality and Quantity
E. Artifacts

III. Mammography Quality Control Procedures - Test and Frequency

A. Daily
   1. Darkroom Cleanliness
   2. Processor Quality Control
B. Weekly
   1. Screen Cleanliness
   2. Viewbox and Viewing Conditions
C. Monthly
   1. Phantom Imaging
   2. Visual Checklist
D. Quarterly
   1. Repeat Analysis
   2. Fixer Retention Analysis
E. Semi-Annually
   1. Darkroom Fog
   2. Screen-Film Contact
   3. Compression

IV. Charting and Documentation of Test Results

V. Establish Operating Levels and Control Limits

CORRELATIVE SKILLS:

- Quality Control Skills Lab
- Film Critique Skills Lab

SUGGESTED TEACHING AIDS:

- Slide Set and Script (to be developed)
- ACR Video (to be developed)

TIME: 90 Minutes

FACULTY: Physicist, R.T.

TEACHING METHODS:

- Lecture
- Demonstration
- Slides

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 6 (TS6)

TITLE: RADIATION BIOLOGY AND RADIATION PROTECTION

GOAL: The participant will understand the biological effects of radiation, the benefit-risk ratio of mammography, the purpose of radiation protection as it relates to patients and personnel, the role of the technologist in radiation protection, and the regulations concerning personnel monitoring.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- Explain the potential biologic effects of radiation.
- Explain the concept of benefit-risk ratios by age and radiation dose.
- Explain the purpose and principles of radiation protection as they apply to patients and personnel.
- Describe the technologist's responsibility for radiation protection.
- Identify personnel radiation monitoring devices.
- Describe (radiation biology objectives...)

CONTENT:

I. Biological Effect of Radiation

- A. Cellular Alterations
- B. Mutations
- C. Carcinogens

II. Benefit-Risk Ratios of Mammography

- A. Age
- B. Radiation Level

III. Purpose of Radiation Protection

- A. Patient
- B. Personnel

IV. Principles of Radiation Protection

- A. Patient Safety
  - 1. Pregnancy
  - 2. Beam Limiting
  - 3. Distance
  - 4. Shielding
- B. Personnel Safety
  - 1. Pregnancy
  - 2. Beam Limiting
  - 3. Distance
  - 4. Shielding
- C. Personnel Monitoring
  - 1. Devices
  - 2. Reports

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

TIME: 60 Minutes

FACULTY: Physicist, R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 7 (TS7)

TITLE: PATIENT EDUCATION/COMMUNICATION

GOAL: The participant will recognize the importance of effective patient education/communication skills.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- Employ effective patient interaction skills.

CONTENT:

I. Role of the Technologist

A. ACR Accreditation Status
B. State Inspection Report
C. Physicist Evaluation Report
D. Radiation Dose for Average Patient
E. Phantom Image Results for Machines in Use
F. Patient Education, including Importance of
   1. Regular BSE
   2. Regular CBE
   3. Regular Mammography
   4. Preparation for Mammography (eg., no deodorant, menstrual cycle timing for comfort)

II. Communication Skills

III. Patient Concerns including Cultural Considerations, Environmental Comfort, etc.

IV. Barriers to Compliance with Early Detection Guidelines

V. Coping Mechanisms (patient and technologist)

VI. Dealing with Special Needs Patients

A. Handicapped (mentally or physically)
B. Non-English Speaking

VIII. Community Resources or Info Sources

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

- Slide Presentation
- Breast Images Videotape (ACS)

TIME: 60 Minutes

FACULTY: Communications Specialist, M.S.W., Psychologist, R.N., R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Role play scenarios

SECTION: TECHNOLOGIST SESSION 8 (TS8)

TITLE: BREAST EXAMINATION: PRINCIPLES AND PROFICIENCY

GOAL: This lecture will introduce the participant to breast examination and documentation of patient history and correlative findings.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Document a complete breast history and correlative findings.
- ! Describe seven proficiency criteria for CBE/BSE.

CONTENT:

I. The Clinical Breast Examination Record

- A. Breast History (by Technologist)
  - 1. Risk Factor Assessment
  - 2. Personal History
    - a. Medical/Surgical
    - b. Reproductive
    - c. Other
  - 3. Family History
    - a. Breast Cancer
    - b. Other Cancer
- B. Correlative Clinical Breast Exam (by Technologist)
  - 1. Correlative Anatomy and Pathophysiology
  - 2. Proficiency for Inspection/Palpation
  - 3. Description of Lesion(s)
  - 4. Location of Lesion(s) by Quadrant and Clock Face Notation
  - 5. Documentation

II. Breast Self-Examination - A New Approach

- A. Proficiency Criteria for Inspection/Palpation
- B. Seven P's - Sample Demonstration
  - 1. Positions
  - 2. Perimeter
  - 3. Palpation with Pads
  - 4. Pressure

5. Pattern of Search
6. Practice with Feedback
7. Plan of Action

C. Resources for BSE Training

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

- CBE Movie (ACS California)
- Michigan ACS CBE Slide Set and Script
- BSE Movie (Lange)
- MammaCare Models
- Sample Patient History Form

TIME: 60 Minutes

FACULTY: M.D./D.O., R.N., R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 9 (TS9)

TITLE: POSITIONING TECHNIQUES FOR MAMMOGRAPHY

GOAL: The participants will be introduced to correct positioning skills needed for diagnostic purposes.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- ! Describe the positioning techniques for screening mammography.
- ! Describe the positioning techniques for diagnostic mammography.
- ! Identify additional views necessary for diagnostic mammography.

CONTENT:

I. Criteria for Excellence

- A. Inclusion of Basic Anatomical Structures
  1. Pectoral Muscle
  2. Skin Line
  3. Nipple
  4. Tail of Spence
  5. Retromammary Fat Space
  6. Inframammary Crease
- B. Proper Compression (importance of)
- C. Technical Variances
  1. Photocell Placement
  2. kVp Changes
  3. Film Receptor Sizes
  4. Reciprocity Law Failure
  5. Density Changes
  6. mAs Changes
- D. Radiopaque Marker Placement
- E. Labeling
  1. Required
     a. Positioning Labeling Codes (ACR) - View and Laterality
     b. Patient Identification
     c. Facility Identification
     d. Date of Exam
     e. Technologist I.D.

f. Cassette/Screen I.D.
g. Other

2 Recommended Labeling
a. Color Coded Date Sticker
b. Dedicated Unit Number
c. Technical Factors
d. Other

II. Routine Views

A. Craniocaudal
B. Mediolateral Oblique

III. Additional Views

A. For Lesion Localization
1. 90-degree Lateral
a. Mediolateral
b. Lateromedial

B. For Better Visualization
1. Exaggerated Lateral c.c.
2. Exaggerated Medial c.c.
3. Cleavage
4. 30-degree Oblique
5. Tangential (for skin calcification, subcutaneous masses, or palpable masses)
6. Roll View
a. Rolled Lateral
b. Rolled Medial
7. Implant Displacement View (previously known as Eklund Projection or Push-back Views)
8. Axillary Tail View

C. For Lesion Clarification
1. Coned Compression
2. Magnification
3. Coned Compression with Magnification
4. Tangential (for skin calcification, subcutaneous masses or palpable mass)
5. Roll View
6. Lumpogram or Non-compressed

D. Positioning Techniques For Special Circumstances
   1. Caudocranial
   2. Lateral-Medial
   3. True Lateral Medial Oblique (LMO)
   4. Axillary
   5. Superolateral to Inferomedial Oblique (SIO)

E. Examples of Circumstances Requiring Modification of Positioning Techniques
   1. Post Mastectomy
   2. Post Radiation Therapy
   3. Extremely Large Breasts
   4. Extremely Small Breasts
   5. Encapsulated Implants
   6. Underage
   7. Post Surgical
   8. Wheelchair
   9. Handicapped
   10. Kyphotic
   11. Males
   12. Protruding Abdomen
   13. Pectus Excavatum
   14. Pectus Carinatum
   15. Prominent Pacemaker

CORRELATIVE SKILLS:

- Positioning Skills Lab

SUGGESTED TEACHING AIDS:

- GE, Tabar, Siemens Tapes (Currently available)
- Lange Productions - "Imaging the Augmented Breast"
- CDC/ACR Positioning Slideset

TIME: 120 Minutes

FACULTY: R.T.

TEACHING METHODS:

- Lectures
- Slides
- Videos

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 10 (TS10)

TITLE: ANALYZING THE MAMMOGRAM: NORMAL AND ABNORMAL FINDINGS

GOAL: The participant will view mammograms and identify findings.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:
- ! Identify normal and abnormal mammographic findings.
- ! Describe additional views necessary for lesion location and clarification.

CONTENT:

I. Tissue types

A. Fatty
B. Fibro-glandular
C. Dense
D. Post Radiation Therapy
E. Lactating
F. Fibro-fatty

II. Benign Mammographic Findings

A. Spiculated Lesions
    1. Post Surgical Scar
    2. Radial Scar
    3. Fat Necrosis
B. Circumscribed Lesions
    1. Fibroadenoma
    2. Cyst
    3. Lymph Nodes
    4. Hamartoma
    5. Lipoma
    6. Hematoma

C. Microcalcifications/Calcification
   1. Adenosis
   2. Skin Calcification
   3. Milk of Calcium
D. Asymmetric Density
   1. Normal Variation
   2. Sclerosing Adenosis
E. Skin Thickening
   1. Post-radiation Therapy/Post-surgical
   2. Mastitis
   3. Congestive Heart Failure

III. Malignant Mammographic Findings

A. Spiculated Lesions
   1. Classic Invasive
B. Circumscribed Lesion
   1. Any Invasive Cancer
   2. Lymph Nodes
C. Microcalcifications
   1. Carcinoma (non-invasive)
D. Invasive Asymmetric Density
   1. Invasive Lobular Carcinoma
D. Skin Thickening
   1. Inflammatory Breast Cancer

CORRELATIVE SKILLS:

- Quality Control - Film Critique Skills Lab
- Quality Control - Film Critique Clinical Practicum

SUGGESTED TEACHING AIDS:

- Teaching Cases on Slides

TIME: 90 Minutes

FACULTY: M.D./D.O.

TEACHING METHODS:

- Lecture
- Teaching Cases

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 11 (TS11)

TITLE: SPECIAL PROCEDURES IN BREAST IMAGING

GOAL: The participant will review special breast imaging procedures and duties.

LEARNING OBJECTIVES:

Upon completion of this unit, you will:

- Define the appropriate use of special procedures in breast imaging.
- Identify the mammographer's role in special imaging.

CONTENT:

I. Standard Needle Localization

A. Purpose
B. Technique
C. Procedure Set-up
D. Utilization of Special Equipment
E. Sterile Technique
F. Specimen Radiography

II. Stereotactic Lesion Localization

A. Purpose
B. Technique
C. Procedure Set-up
D. Utilization of Special Equipment
E. Sterile Technique
F. Images Obtained

III. Ultrasound

A. Technique
B. Application

IV. Cyst Aspiration

A. Technique
B. Application

V. Galactography/Ductography

A. Technique
B. Application

VI. Fine Needle Aspiration

A. Technique
B. Application

VII. Pneumocystography

A. Technique
B. Application

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

- Sample Slide Set (to be determined or developed)
- National Standard Video Tape "Breast Localization - A Simple Procedure"
- Tabar - Galactography/Pneumocystography Video

TIME: 60 Minutes

FACULTY: M.D./D.O., R.T.

TEACHING METHODS: Lecture

EVALUATION COMPONENT: Written test

SECTION: TECHNOLOGIST SESSION 12 - WORKSHOP 1 (TW1)

TITLE: QUALITY CONTROL SKILLS LAB

GOAL: The participant will recognize and be informed of correct standards for technical quality control.

LEARNING OBJECTIVES:

Upon completion of this lab, you will:

- ! Perform comprehensive quality control test procedures.
- ! Perform comprehensive documentation of quality control test procedures.
- ! Determine appropriate corrective measures resulting from variability in quality control standards.

CONTENT:

I. Daily

- A. Darkroom Cleanliness
- B. Processor Quality Control - Daily Sensitometry: Establish and Record Variability Limits
  1. Base + Fog
  2. Mid-density (MD) or Speed Index
  3. Density Difference (DD) or Contrast Index

II. Weekly

- A. Screen Maintenance and Cleaning
- B. Viewboxes and Viewing Conditions

III. Monthly

- A. Phantom Images
  1. Measure and Plot Background Density and Density Difference
  2. Determine the Total Number of Masses, Speck Groups, and Fibers Visible
  3. Documentation
- B. Visual Checklist

IV. Quarterly

A. Repeat Analysis
   1. Reject and Repeat Rates
B. Analysis of Fixer Retention

V. Semi-Annually

A. Darkroom Fog Test
B. Screen-film Contact
C. Compression

CORRELATIVE SKILLS:

- Film Critique Skills Lab

SUGGESTED TEACHING AIDS:

- Sample Film Packets
- Densitometers
- Sensitometers
- RMI Phantom
- Forty-Gauge Wire Mesh
- Bathroom Scale or Compression Gauge
- Non-mercury Thermometer
- Image Quality Assessment Form
- Repeat Analysis Forms
- Processor Control Charts
- Visual Checklist
- Viewboxes and Magnifying Glasses
- Mammography Cassettes
- Black Film for Masking Images
- Hypo Test Kit

TIME: 90 Minutes

FACULTY: R.T.

TEACHING METHODS: Lab Experiments

EVALUATION COMPONENT: Practicum

SECTION: TECHNOLOGIST SESSION 13 - WORKSHOP 2 (TW2)

TITLE: POSITIONING SKILLS LAB

GOAL: The participant will perform mammographic positions.

LEARNING OBJECTIVES:

Upon completion of this lab, you will:

- Demonstrate mammography positioning skills.

CONTENT:

I. Demonstrate content listed under "Positioning Techniques."
II. Simulate modification of techniques when possible.
III. Practice procedures on live model.

CORRELATIVE SKILLS:

SUGGESTED TEACHING AIDS:

- Mammography Equipment
- Live Models
- Gowns
- Wheel Chair
- Rubber Spatula
- Positioning Competency Checklist for Supervisors/Routine Views

TIME: 150 minutes

FACULTY: R.T.

TEACHING METHODS: Lab Experiments

EVALUATION COMPONENT: Practice/simulation

SECTION: TECHNOLOGIST SESSION 14 - WORKSHOP 3 (TW3)

TITLE: FILM CRITIQUE SKILLS LAB

GOAL: The participant will view processed mammograms to evaluate whether optimum image quality criteria are met.

LEARNING OBJECTIVES:

Upon completion of this lab, you will identify all criteria associated with optimum image quality, including:

- Locate artifacts on the radiograph.
- Initiate correct positioning skills to localize and aid diagnosis.
- Differentiate mammographic lesions.

CONTENT:

I. Criteria associated with optimum image quality

- A. Artifacts - Define and Recognize Source
  1. Processor
  2. Darkroom
  3. Film-Screen
  4. Equipment (e.g., grid)
- B. Positioning
- C. Compression
- D. Optical Density
- E. Sharpness
- F. Contrast
- G. Noise
- H. Exam Identification

II. Problem Solving

- A. Problem Identification
- B. Problem Resolution

III. Mammographic Findings

A. Spiculated Lesions
B. Circumscribed Lesions
C. Microcalcifications
D. Asymmetric Densities
E. Skin Thickening

CORRELATIVE SKILLS:

! Quality Control Skills Lab

SUGGESTED TEACHING AIDS:

! Sample Film Packets with Teaching Cases
! Viewboxes
! Magnifying Glasses
! Clear Plastic Rulers
! Checklist for Acceptable Clinical Images
! Black Film for Masking Images
! Film Manufacturers' Resources (e.g. "Diagnosing and Resolving Processor Related Artifacts", "Processor Troubleshooting Chart" - DuPont Company, Eastman Kodak, etc.)

TIME: 60 Minutes

FACULTY: M.D./D.O., R.T.

TEACHING METHODS: Lab Experiments

EVALUATION COMPONENT: Practicum